IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Jerrold V. Hauck, et al.	Appl. No.:	10/728,185
Examiner:	Cehic, Kenan	Gr. Art Unit:	2473
Filing Date:	December 3, 2003		
For:	**FLY-BY AND ACK-ACCELERATED ARBITRATION FOR BROADCAST PACKETS**		

APPEAL BRIEF PURSUANT TO 37 CFR 41.37

Dear Sir or Madam:

In reply to the *Notice of Panel Decision from Pre-Appeal Brief Review* dated January 5, 2010 ("Pre-Appeal Brief Panel Decision") and the Final Office Action dated June 23, 2009 ("Office Action"), Applicant herein files an appeal brief for the above-identified application.

Real Party in Interest

Apple Inc. (the Applicant for Application Serial No. 10/728,185) is the real party in interest.

Related Appeals and Interferences

A pre-appeal brief request for review was filed with the U.S. Patent & Trademark Office on November 23, 2009. A determination dated January 5, 2010 held that the application remains under appeal because there is at least one actual issue for appeal. Applicant has included as Appendix III herein a copy of the pre-appeal brief request correspondence and disposition thereof.

Status of Claims

Claims 8 – 17, 24, 25, 28 and 29 were previously cancelled.

Claims 1 – 7, 18 – 23, 26, 27 and 30 – 49 are now pending in the application.

Per the Pre-Appeal Brief Panel Decision and the Office Action, Claims 1 – 7, 18 – 23, 26, 27 and 30 – 49 each stand rejected.

Applicant herein explicitly appeals the rejection of Claims 1 – 7, 18 – 23, 26, 27 and 30 – 49.

Status of Amendments

Applicant has not submitted amendments to any of the claims subsequent to final rejection (see Final Office Action dated June 23, 2009) of the above-identified claims.

Summary of Claimed Subject Matter

Claim 1 – Claim 1 sets forth and claims a method for administering a serial bus that facilitates communication between node devices connected to the bus and communicating over the bus in the form of packetized communication between the node devices as described at, *inter alia*, FIG. 1 and paragraph [0019] of Applicant's specification as filed. A first type of packet comprises asynchronous packets characterized by the absence of a requirement that an unarbitrated response or ack packet be sent in response to transmission of a packet of the first type along with a second type of packet that comprises asynchronous packets is disclosed at, *inter alia*, paragraphs [0005] and [0006]. The method determines if there is a packet of the second type to be sent, then concatenates the packet of the second type to packets of the first type followed by sending the packets of the first type followed by the concatenated packet of the second type (described at, *inter alia*, FIG. 3, steps 204 – 206 of paragraph [0031]). If there is no packet of the second type to be sent, a bogus ack (acknowledgement) packet is concatenated to the packets of the first type and the packets of the first type followed by the concatenated bogus ack packet is sent (described at, *inter alia*, FIG. 3, step 208 of paragraph [0031]).

Claim 18 – Claim 18 sets forth and claims a method for administering a serial bus that facilitates communication between node devices connected to the bus in the form of packetized communication between the node devices (described at, *inter alia*, FIG. 1 and paragraph [0019] of Applicant's specification as filed). Asynchronous packets characterized by the absence of a requirement that an unarbitrated response or ack packet be sent in response to transmission of a packet of the first type and a second type of packet comprising asynchronous packets are disclosed at, *inter alia*, paragraphs [0005] – [0006]. The method includes receiving a packet of the first type and determining that there are no packets of the second type to be sent (disclosed at *inter alia* FIG. 4, steps 300 and 302 of paragraph [0032]). If fly-by concatenation is permitted, then a bogus ack packet is concatenated to the received packet and sent (disclosed at *inter alia* FIG. 4, steps 318 and 320 of paragraph [0032]). If fly-by concatenation is not permitted then the received packet is sent, the bus is arbitrated for and the bogus ack packet is sent (disclosed at *inter alia* FIG. 4, steps 318, 322 and 324 of paragraph [0032]).

Claim 23 – Claim 23 sets forth and claims a computer readable medium containing instructions which, when executed by a computer, administer a serial bus that facilitates communication between node devices connected to the bus in the form of packetized communication between node devices (described at, *inter alia*, FIG. 1 and paragraph [0019] of Applicant's specification as filed). A first type of packet comprises asynchronous packets characterized by the absence of a requirement that an unarbitrated response or ack packet be sent in response to transmission of a packet of the first type and a second type of packet comprising asynchronous packets is disclosed at, *inter alia*, paragraphs [0005] – [0006]. If there is a packet of the second type to be sent, the packet of the second type is concatenated to packets of the first type and the packets of the first type are sent followed by the concatenated packet of the second type as described at, *inter alia*, FIG. 3, steps 204 – 206 of paragraph [0031]. If there is no packet of the second type to be sent, a bogus ack packet is concatenated to the packets of the first type and sent, which is described at, *inter alia*, FIG. 3, step 208 of paragraph [0031].

Claim 26 – Claim 26 sets forth and claims a computer readable medium containing instructions which, when executed by a computer, administer a serial bus that facilitates communication between node devices connected to the bus in the form of packetized communication between node devices as described at, *inter alia*, FIG. 1 and paragraph [0019] of Applicant's specification as filed. A first type of packet comprises asynchronous packets characterized by the absence of a requirement that an unarbitrated response or ack packet be sent in response to transmission of a packet of the first type along with a second type of packet comprising asynchronous packets is disclosed at, *inter alia*, paragraphs [0005] – [0006]. The computer readable medium receives a packet of the first type and determines that there are no packets of the second type to be sent (disclosed at *inter alia* FIG. 4, steps 300 and 302 of paragraph [0032]). If fly-by concatenation is permitted then a bogus ack packet is concatenated to the received packet and sent (disclosed at *inter alia* FIG. 4, steps 318 and 320 of paragraph [0032]). If fly-by concatenation is not permitted then the received packet is sent, the bus is arbitrated for and the bogus ack packet is sent (disclosed at *inter alia* FIG. 4, steps 318, 322 and 324 of paragraph [0032]).

Claim 27 – Claim 27 sets forth and claims a node device connected to a serial bus and includes a computer readable medium comprising instructions which, when executed by a computer, administer a serial bus that facilitates communication between the node device and other node devices connected to the bus in the form of packetized communication described at, *inter alia*, FIG. 1 and paragraph [0019] of Applicant's specification as filed. A first type of packet comprises asynchronous packets characterized by the absence of a requirement that an unarbitrated response or ack packet be sent in response to transmission of a packet of the first type along with a second type of packet that comprises asynchronous packets is disclosed at, *inter alia*, paragraphs [0005] – [0006]. If there is a packet of the second type to be sent, then the packet of the second type is concatenated to packets of the first type and sent (described at, *inter alia*, FIG. 3, steps 204 – 206 of paragraph [0031] of Applicant's specification as filed). If there is no packet of the second type to be sent, then a bogus ack packet is concatenated to the packets of the first type and sent which is described at, *inter alia*, FIG. 3, step 208 of paragraph [0031].

Claim 30 – Claim 30 sets forth and claims a node device connected to a serial bus, that comprises a computer readable medium comprising instructions which, when executed by a computer, administer a serial bus that facilitates communication between the node device and other node devices connected to the bus in the form of packetized communication described at, *inter alia*, FIG. 1 and paragraph [0019] of Applicant's specification as filed. A first type of packet comprises asynchronous packets characterized by the absence of a requirement that an unarbitrated response or ack packet be sent in response to transmission of a packet of the first type along with a second type of packet that comprises asynchronous packets is disclosed at, *inter alia*, paragraphs [0005] – [0006]. The node device receives a packet of the first type and determines that there are no packets of the second type to be sent (disclosed at *inter alia* FIG. 4, steps 300 and 302 of paragraph [0032]). If fly-by concatenation is permitted then a bogus ack packet is concatenated to the received packet and sent (disclosed at *inter alia* FIG. 4, steps 318 and 320 of paragraph [0032]). If fly-by concatenation is not permitted then the received packet is sent, the bus arbitrated for and the bogus ack packet is sent (disclosed at *inter alia* FIG. 4, steps 318, 322 and 324 of paragraph [0032]).

Claim 31 – Claim 31 sets forth and claims a method for administering a data bus that facilitates communication between node devices communicating over the bus using at least a first type and second type of asynchronous packet described at, *inter alia*, FIG. 1 and paragraph [0019] of Applicant's specification as filed. The first type of packet does not require that an acknowledgement packet be sent in response to transmission (disclosed at, *inter alia*, paragraphs [0005] – [0006]). If a packet of the second type needs to be sent, the packet of the second type is concatenated to packets of the first type and sent (described at, *inter alia*, FIG. 3, steps 204 – 206 of paragraph [0031]). If no packet of the second type needs to be sent, a false acknowledgement packet is concatenated to the packets of the first type and sent, which is described at, *inter alia*, FIG. 3, step 208 of paragraph [0031].

Claim 38 – Claim 38 sets forth and claims a method for administering a data bus that facilitates communication between node devices communicating over the bus using at least a first type of asynchronous packet and a second type of asynchronous packet described at, *inter alia*, FIG. 1 and paragraph [0019] of Applicant's specification as filed. The first type of packet has no requirement that a response packet be sent in response to transmission thereof (disclosed at, *inter alia*, paragraphs [0005] – [0006]). The method includes receiving a packet of the first type and determining that there are no packets of the second type to be sent (disclosed at *inter alia* FIG. 4, steps 300 and 302 of paragraph [0032]). If concatenation is permitted, a false response packet is concatenated to the received packet and sent (disclosed at *inter alia* FIG. 4, steps 318 and 320 of paragraph [0032]). If concatenation is not permitted, the received packet is sent, the bus arbitrated for and a false response packet sent (disclosed at *inter alia* FIG. 4, steps 318, 322 and 324 of paragraph [0032]).

Claim 43 – Claim 43 sets forth and claims a node device adapted to administer a data bus that facilitates communication between the node device and another device communicating over the bus using at least a first type and second type of asynchronous packet as described at, *inter alia*, FIG. 1 and paragraph [0019] of Applicant's specification as filed. The first type of packet does not require that an acknowledgement packet be sent in response to transmission of such first type of packet (disclosed at, *inter alia*, paragraphs [0005] – [0006]). The node device determines if a packet of the second type needs to be sent and if so, concatenates the packet of the second type to packets of the first type and sends these packets (described at, *inter alia*, FIG. 3, steps 204 – 206 of paragraph [0031]). If no packet of the second type needs to be sent, a false acknowledgement packet is concatenated to the packets of the first type and is sent, which is described at, *inter alia*, FIG. 3, step 208 of paragraph [0031].

Claim 49 – Claim 49 sets forth and claims a node device for administering a data bus that facilitates communication between the node device and another device communicating over the bus using at least a first type of asynchronous packet and a second type of asynchronous packet described at, *inter alia*, FIG. 1 and paragraph [0019] of Applicant's specification as filed. The first type of packet has no requirement that a response packet be sent in response to transmission thereof (disclosed at, *inter alia*, paragraphs [0005] – [0006]). The node device receives a packet of the first type and determines that there are no packets of the second type to be sent (disclosed at *inter alia* FIG. 4, steps 300 and 302 of paragraph [0032]). If concatenation is permitted, a false response packet is concatenated to the received packet and sent (disclosed at *inter alia* FIG. 4,

steps 318 and 320 of paragraph [0032]). If concatenation is not permitted, the received packet is sent, the bus arbitrated for, and a false response packet sent (disclosed at *inter alia* FIG. 4, steps 318, 322 and 324 of paragraph [0032]).

Grounds of Rejection to be Reviewed

1. Whether Claims 1, 18, 20, 31, 38, 40, 43 and 49 are unpatentable under 35 U.S.C. §103 as being obvious over Hauck et al. (U.S. Patent No. 6,356,558, hereinafter "Hauck") in view of Duckwall (U.S. Patent No. 5,495,481, hereinafter "Duckwall '481").

2. Whether Claims 23, 26, 27 and 30 are unpatentable under 35 U.S.C. §103 as being obvious over Hauck in view of Duckwall '481 and further in view of Henry et al. (U.S. Patent Pub. No. 2004/0151153, hereinafter "Henry").

3. Whether Claims 2, 3, 32, 33, 44 and 45 are unpatentable under 35 U.S.C. §103 as being obvious over Hauck in view of Duckwall '481 and further in view of Duckwall (U.S. Patent No. 5,802,057, hereinafter "Duckwall '057").

4. Whether Claims 4, 5, 19, 34, 35, 39 and 46 are unpatentable under 35 U.S.C. §103 as being obvious over Hauck in view of Duckwall '481 and further in view of Duckwall (U.S. Patent Pub. No. 2004/0246959, hereinafter "Duckwall '959").

5. Whether Claims 6, 7, 21, 22, 36, 37, 41, 42, 47 and 48 are unpatentable under 35 U.S.C. §103 as being obvious over Hauck in view of Duckwall '481 and further in view of Kobayashi et al. (U.S. Patent Pub. No. 2003/0179719, hereinafter "Kobayashi").

Arguments

I. Rejection of Claims 1, 18, 20, 31, 38, 40, 43 and 49 as being Obvious over Hauck in view of Duckwall '481

Claims 1, 18, 31, 38, 43 and 49 – Per page 4 of the Office Action, each of independent Claims 1, 18, 31, 38, 43 and 49 were rejected over Hauck in view of Duckwall '481. Claims 1 and 18 each recite the element *"bogus ack packet"*, while Claims 31 and 43 recite the element *"false acknowledgement packet"*, and Claims 38 and 49 recite the element *"false response packet"*. The Examiner alleges that each of these recited terms is taught by the Duckwall '481 reference at Col. 6, lines 20 – 50. **See pages 11 – 12 of the Office Action.** Col. 6, lines 20 – 50 of Duckwall '481 is reproduced in relevant part below:

> *"If a node determines that an acknowledge packet has been transmitted, repeated, or received, that node need not remain idle for the subaction gap time T_{sa} and may begin arbitration immediately.... According to the P1394 serial bus standard, acknowledge packets are eight bits long, wherein data packets are at least sixty-four bits long.... For one embodiment, if the counted number of bits for a packet is*

equal to eight, the node identifies that an acknowledge packet has been transmitted and immediately begins the arbitration phase of the next subaction...."

Accordingly, it appears that the Examiner is equating the terms *"bogus ack packet"*; *"false acknowledgement packet"*; and *"false response packet"* as used in Applicant's claims with the teaching of an *"acknowledgement packet"* in Duckwall '481.

Applicant notes that during patent examination, the pending claims must be *"given their broadest reasonable interpretation consistent with the specification."* {emphasis added} See, e.g. MPEP § 2111 and the Federal Circuit's *en banc* decision in *Phillips v. AWH Corp.*, 415 F.3d 1303, 75 USPQ2d 1321 (Fed. Cir. 2005).

For the purposes of conciseness, only the limitation *"bogus ack packet"* is addressed herein; however, Applicant believes similar logic applies equally to the other recited claim limitations listed above. Applicant submits that the Examiner's interpretation of the term *"bogus ack packet"* as equating to the term *"acknowledge packet"* is entirely inconsistent (i) with not only the plain meaning of the term *"bogus ack"*, but also (ii) with Applicant's specification as filed as well, and accordingly constitutes a clearly erroneous interpretation by the Examiner.

As to element (i), the Examiner effectively reads out the term "bogus ack" entirely from the Claim(s) as part of his rejection. Random House Dictionary (2010) defines the term "bogus" as follows:

"*bo·gus –adjective*
1. not genuine; counterfeit; spurious; sham."

Hence, the Examiner has improperly equated the term "ack" with "bogus ack", failing to consider the meaning of the term "bogus" in any way (plain language or otherwise).

As to element (ii), paragraph [0026] of Applicant's specification as filed sets forth:

"The bogus ack packet does not have to follow the prior-art convention that the second nibble is the complement of the first nibble. By not having a second nibble that is the compliment of the first nibble, the bogus ack packet causes the link hardware to filter it out so that it has no effect at that level. However, by definition in 1394, the PHY recognizes any 8-bit packet as an ack packet for the purposes of acceleration. Thus the present invention utilizes a packet that meets the requirements for recognition at one physical and/or transaction layer, but not at a different layer." {emphasis added}

Accordingly, Applicant's specification as filed clearly differentiates and distinguishes from prior art "ack" (or acknowledgement) packets as taught by, *inter alia*, Duckwall '481. The two are *not* interchangeable, and use of a prior art "ack" packet in Applicant's claimed inventions to fulfill the function of the claimed "bogus" ack would render these inventions inoperable for their intended purpose, in violation of MPEP 2143.01("If the proposed modification would

render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." *In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984)).

The Examiner's interpretation is accordingly entirely inconsistent with Applicant's specification as filed, as set forth above. The Examiner has completely and erroneously read the term "bogus" out of each of Applicant's rejected claims.

Applicant therefore respectfully submits that the Examiner has committed clear error in rendering obvious Applicant's Claim 1, 18, 31, 38, 43 and 49 inventions by interpreting Applicant's claim language in a way that is both: (1) inconsistent with the plain meaning of the terms; and (2) inconsistent with Applicant's specification as filed.

Claims 20 and 40 – Applicant submits that Claims 20 and 40 are allowable at least by virtue of their dependencies from Claims 18 and 38 discussed above. Applicant submits no additional arguments with respect to these claims.

II. Rejection of Claims 23, 26, 27 and 30 as being Obvious over Hauck in view of Duckwall '481 and further in view of Henry

Per page 12 of the Office Action, Claims 23, 26, 27 and 30 were rejected in view of Hauck, Duckwall '481 and U.S. Patent Pub. No. 2004/0151153 (hereinafter "Henry et al").Each of Claims 23, 26, 27, and 30 recite the element *"bogus ack packet*. The Examiner alleges that this recited term is taught by the Duckwall '481 reference at Col. 6, lines 20 – 50. See pages 11 – 12 of the Office Action. Col. 6, lines 20 – 50 of Duckwall '481 was reproduced previously herein with regards to the discussion of Claims 1, 18, 31, 38, 43 and 49. Accordingly, and as previously discussed, it appears that the Examiner is equating the terms *"bogus ack packet"* with Duckwall '481's teaching of an *"acknowledgement packet"*.

Applicant again notes that during patent examination, the pending claims must be *"given their broadest reasonable interpretation consistent with the specification."* {emphasis added} See, e.g. MPEP § 2111 and the Federal Circuit's *en banc* decision in *Phillips v. AWH Corp.*, 415 F.3d 1303, 75 USPQ2d 1321 (Fed. Cir. 2005).

Applicant submits that the Examiner's interpretation of the term *"bogus ack packet"* as equating with the term *"acknowledge packet"* is entirely inconsistent with not only (i) the plain meaning of the term *"bogus ack"*, but also (ii) with Applicant's specification as filed as well, and accordingly constitutes a clearly erroneous interpretation by the Examiner.

Paragraph [0026] of Applicant's specification as filed sets forth:

> *"The bogus ack packet does not have to follow the prior-art convention that the second nibble is the complement of the first nibble. By not having a second nibble that is the compliment of the first nibble, the bogus ack packet causes the link hardware to filter it out so that it has no effect at that level. However, by definition in 1394, the PHY recognizes any 8-bit packet as an ack packet for the*

purposes of acceleration. Thus the present invention utilizes a packet that meets the requirements for recognition at one physical and/or transaction layer, but not at a different layer." {emphasis added}

Accordingly, Applicant's specification as filed clearly differentiates and distinguishes from prior art "ack" (or acknowledgement) packets as taught by, *inter alia*, Duckwall '481. The Examiner's interpretation is accordingly entirely inconsistent with Applicant's specification as filed as set forth above. The Examiner has completely and erroneously read the term "bogus" out of each of Applicant's rejected claims. See e.g., page 11 of the Office Action.

Applicant therefore respectfully submits that the Examiner has committed clear error in rendering obvious Applicant's Claim 23, 26, 27 and 30 inventions by interpreting Applicant's claim language in a way that is both: (1) inconsistent with the plain meaning of the terms; and (2) inconsistent with Applicant's specification as filed.

III. Rejection of Claims 2, 3, 32, 44 and 45 as being Obvious over Hauck in view of Duckwall '481 and further in view of Duckwall '057

Claims 2, 3, 32, 44 and 45 – Applicant submits that Claims 2, 3, 32, 44 and 45 are each allowable at least by virtue of their respective dependencies from Claims 1, 31 and 43 discussed above. Applicant submits no additional arguments with respect to these claims. Furthermore, Applicant submits that the inclusion of Duckwall '057 in the analysis does not overcome the arguments previously set forth herein.

IV. Rejection of Claims 4, 5, 19, 34, 35, 39 and 46 as being Obvious over Hauck in view of Duckwall '481 and further in view of Duckwall '959

Claims 4, 5, 19, 34, 35, 39 and 46 – Applicant submits that Claims 4, 5, 19, 34, 35, 39 and 46 are each allowable at least by virtue of their respective dependencies from Claims 1, 18, 31, 38 and 43 discussed above. Applicant submits no additional arguments with respect to these claims.

Furthermore, Applicant submits that the inclusion of Duckwall '959 in the analysis does not overcome the arguments previously set forth herein. Duckwall '959 teaches nothing of greater materiality or relevance to the independent claims than any of the other art, and is therefore respectfully merely cumulative.

V. Rejection of Claims 6, 7, 21, 22, 36, 37, 41, 42, 47 and 48 as being Obvious over Hauck in view of Duckwall '481 and further in view of Kobayashi

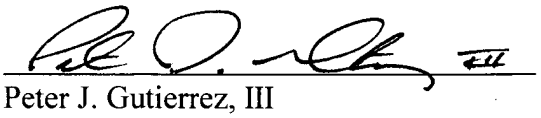
Claims 6, 7, 21, 22, 36, 37, 41, 42, 47 and 48 – Applicant submits that Claims 6, 7, 21, 22, 36, 37, 41, 42, 47 and 48 are each allowable at least by virtue of their respective dependencies from Claims 1, 18, 31, 38 and 43 discussed above. Applicant submits no additional arguments with respect to these claims.

Furthermore, Applicant submits that the inclusion of Kobayashi in the analysis does not overcome the arguments previously set forth herein. Kobayashi teaches nothing of greater materiality or relevance to the independent claims than any of the other art, and is therefore respectfully merely cumulative.

Respectfully submitted,

GAZDZINSKI & ASSOCIATES, PC

Dated: April 5, 2010

By: 

Peter J. Gutierrez, III
Registration No. 56,732
16644 West Bernardo Drive, Suite 201
San Diego, CA 92127
Telephone No.: (858) 675-1670
Facsimile No.: (858) 675-1674

APPENDIX I - CLAIMS

1. (Previously presented) A method for administering a serial bus, the bus facilitating communication between node devices connected to the bus and communicating over the bus in the form of packetized communication between said node devices, wherein a first type of packet comprises asynchronous packets characterized by the absence of a requirement that an unarbitrated response or ack packet be sent in response to transmission of a packet of the first type, wherein a second type of packet comprises asynchronous packets, the method comprising:

if there is a packet of the second type to be sent, then concatenating the packet of the second type to a plurality of packets of the first type and sending the plurality of packets of the first type followed by the concatenated packet of the second type; and

if there is no packet of the second type to be sent, then concatenating a bogus ack packet to the plurality of packets of the first type and sending the plurality of packets of the first type followed by the concatenated bogus ack packet.

2. (Original) The method of claim 1, wherein concatenating the packet of the second type is performed by link hardware.

3. (Original) The method of claim 1, wherein concatenation of the bogus ack packet is performed by link hardware.

4. (Original) The method of claim 1, wherein concatenation of the bogus ack packet is performed by PHY hardware.

5. (Original) The method of claim 4, wherein link hardware is unaware that the PHY hardware performs concatenation.

6. (Original) The method of claim 1, further comprising inspecting a first quadlet of a packet to determine a packet type.

7. (Original) The method of claim 6, wherein the first quadlet contains a transaction code, further comprising:

determining from the transaction code that the packet is a stream packet; and

determining that transmission is not occurring during an isochronous period.

8. – 17. (Cancelled)

18. (Previously presented) A method for administering a serial bus, the bus facilitating communication between node devices connected to the bus and communicating over the bus in the form of packetized communication between said node devices, wherein a first type of packet comprises asynchronous packets characterized by the absence of a requirement that an unarbitrated response or ack packet be sent in response to transmission of a packet of the first type, wherein a second type of packet comprises asynchronous packets, the method comprising:

receiving a packet of the first type;

determining that there are no packets of the second type to be sent;

if fly-by concatenation is permitted then concatenating a bogus ack packet to the received packet and sending the received packet and the bogus ack packet; and

if fly-by concatenation is not permitted then sending the received packet, arbitrating for the bus, and sending a bogus ack packet.

19. (Original) The method of claim 18, wherein concatenating the bogus ack packet is performed by PHY hardware.

20. (Original) The method of claim 18, wherein arbitrating for control of the bus is performed by PHY hardware.

21. (Original) The method of claim 18, further comprising inspecting a first quadlet of a packet to determine a packet type.

22. (Original) The method of claim 21, wherein the first quadlet contains a transaction code, further comprising:

determining from the transaction code that the packet is a stream packet; and

determining that transmission is not occurring during an isochronous period.

23. (Previously presented) A computer readable medium containing instructions which, when executed by a computer, administer a serial bus that facilitates communication between node devices connected to the bus and communicating over the bus in the form of packetized communication between said node devices, wherein a first type of packet comprises asynchronous packets characterized by the absence of a requirement that an unarbitrated response or ack packet be sent in response to transmission of a packet of the first type, wherein a second type of packet comprises asynchronous packets, by performing the acts of:

if there is a packet of the second type to be sent, then concatenating the packet of the second type to a plurality of packets of the first type and sending the plurality of packets of the first type followed by the concatenated packet of the second type; and

if there is no packet of the second type to be sent, then concatenating a bogus ack packet to the plurality of packets of the first type and sending the plurality of packets of the first type followed by the concatenated bogus ack packet.

24. – 25. (Cancelled)

26. (Previously presented) A computer readable medium containing instructions which, when executed by a computer, administer a serial bus that facilitates communication between node devices connected to the bus and communicating over the bus in the form of packetized communication between said node devices, wherein a first type of packet comprises asynchronous packets characterized by the absence of a requirement that an unarbitrated response or ack packet be sent in response to transmission of a packet of the first type, wherein a second type of packet comprises asynchronous packets, by performing the acts of:

receiving a packet of the first type;

determining that there are no packets of the second type to be sent;

if fly-by concatenation is permitted then concatenating a bogus ack packet to the received packet and sending the received packet and the bogus ack packet; and

if fly-by concatenation is not permitted then sending the received packet, arbitrating for the bus, and sending a bogus ack packet.

27. (Previously presented) A node device connected to a serial bus, the node device comprising a computer readable medium comprising instructions which, when executed by a computer, administer a serial bus that facilitates communication between said node device and a plurality of node devices connected to the bus and communicating over the bus in the form of packetized communication between said node device and said plurality of node devices, wherein a first type of packet comprises asynchronous packets characterized by the absence of a requirement that an unarbitrated response or ack packet be sent in response to transmission of a packet of the first type, wherein a second type of packet comprises asynchronous packets, by performing the acts of:

if there is a packet of the second type to be sent, then concatenating the packet of the second type to a plurality of packets of the first type and sending the plurality of packets of the first type followed by the concatenated packet of the second type; and

if there is no packet of the second type to be sent, then concatenating a bogus ack packet to the plurality of packets of the first type and sending the plurality of packets of the first type followed by the concatenated bogus ack packet.

28. – 29. (Cancelled)

30. (Previously presented) A node device connected to a serial bus, the node device comprising a computer readable medium comprising instructions which, when executed by a computer, administer a serial bus that facilitates communication between said node device and a plurality of node devices connected to the bus and communicating over the bus in the form of packetized communication between said node device and said plurality of node devices, wherein a first type of packet comprises asynchronous packets characterized by the absence of a requirement that an unarbitrated response or ack packet be sent in response to transmission of a packet of the first type, wherein a second type of packet comprises asynchronous packets, by performing the acts of:

receiving a packet of the first type;

determining that there are no packets of the second type to be sent;

if fly-by concatenation is permitted then concatenating a bogus ack packet to the received packet and sending the received packet and the bogus ack packet; and

if fly-by concatenation is not permitted then sending the received packet, arbitrating for the bus, and sending a bogus ack packet.

31. (Previously presented) A method for administering a data bus, the bus facilitating communication between node devices communicating over the bus using at least a first type and second type of asynchronous packet, the first type of packet not requiring that an acknowledgement packet be sent in response to transmission of such first type of packet, the method comprising:

if a packet of the second type needs to be sent, concatenating the packet of the second type to a plurality of packets of the first type and sending the plurality of packets of the first type followed by the concatenated packet of the second type; and

if no packet of the second type needs to be sent, concatenating a false acknowledgement packet to the plurality of packets of the first type and sending the plurality of packets of the first type followed by the concatenated false acknowledgement packet.

32. (Previously presented) The method of claim 31, wherein concatenating the packet of the second type is performed by link hardware.

33. (Previously presented) The method of claim 31, wherein concatenation of the false acknowledgement packet is performed by link hardware.

34. (Previously presented) The method of claim 31, wherein concatenation of the false acknowledgement packet is performed by PHY hardware.

35. (Previously presented) The method of claim 34, wherein link hardware is unaware that the PHY hardware performs concatenation.

36. (Previously presented) The method of claim 31, further comprising inspecting a first quadlet of a packet to determine a packet type.

37. (Previously presented) The method of claim 36, wherein the first quadlet contains a transaction code, further comprising:

determining from the transaction code that the packet is a stream packet; and

determining that transmission is not occurring during an isochronous period.

38. (Previously presented) A method for administering a data bus, the bus facilitating communication between node devices communicating over the bus using at least a first type of asynchronous packet and a second type of asynchronous packet, the first type of packet having no requirement that a response packet be sent in response to transmission thereof, the method comprising:

receiving a packet of the first type;

determining that there are no packets of the second type to be sent;

if concatenation is permitted, concatenating a false response packet to the received packet and sending the received packet and the false packet; and

if concatenation is not permitted, sending the received packet, arbitrating for the bus, and sending a false response packet.

39. (Previously presented) The method of claim 38, wherein concatenating the false response packet is performed by PHY hardware.

40. (Previously presented) The method of claim 38, wherein arbitrating for control of the bus is performed by PHY hardware.

41. (Previously presented) The method of claim 38, further comprising inspecting a first quadlet of a packet to determine a packet type.

42. (Previously presented) The method of claim 41, wherein the first quadlet contains a transaction code, further comprising:

determining from the transaction code that the packet is a stream packet; and

determining that transmission is not occurring during an isochronous period.

43. (Previously presented) A node device adapted to administer a data bus, the bus facilitating communication between said node device and another device communicating over the bus using at least a first type and second type of asynchronous packet, the first type of packet not requiring that an acknowledgement packet be sent in response to transmission of such first type of packet, the node device comprising first apparatus adapted to:

determine if a packet of the second type needs to be sent, and if so, concatenate the packet of the second type to a plurality of packets of the first type, and send the plurality of packets of the first type followed by the concatenated packet of the second type; and

if no packet of the second type needs to be sent, concatenate a false acknowledgement packet to the plurality of packets of the first type, and send the plurality of packets of the first type followed by the concatenated false acknowledgement packet.

44. (Previously presented) The node device of claim 43, further comprising link hardware adapted to concatenate the packet of the second type.

45. (Previously presented) The node device of claim 43, further comprising link hardware adapted to concatenate the false acknowledgement packet.

46. (Previously presented) The node device of claim 43, further comprising PHY hardware adapted to concatenate the false acknowledgement packet.

47. (Previously presented) The node device of claim 43, further comprising apparatus adapted to inspect a first quadlet of a packet to determine a packet type, the first quadlet containing a transaction code.

48. (Previously presented) The node device of claim 47, further comprising apparatus adapted to:

determine from the transaction code that the packet is a stream packet; and

determine that transmission is not occurring during an isochronous period.

49. (Previously presented) A node device for administering a data bus, the bus facilitating communication between said node device and another device communicating over the bus using at least a first type of asynchronous packet and a second type of asynchronous packet, the first type of packet having no requirement that a response packet be sent in response to transmission thereof, the node device comprising apparatus adapted to:

receive a packet of the first type;

determine that there are no packets of the second type to be sent;

if concatenation is permitted, concatenate a false response packet to the received packet, and send the received packet and the false packet; and

if concatenation is not permitted, send the received packet, arbitrate for the bus, and send a false response packet.

APPENDIX II - EVIDENCE

NONE

APPENDIX III - RELATED PROCEEDINGS

(See attached)